

REPORT

Regional Assessment Survey and Workshop on Full Cost Recovery for Water Utilities in Southeast Asia: *Sharing International Experience and Best Practices*



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ACRONYMS

ADB	Asian Development Bank
EPA	United States Environmental Protection Agency
FCR	Full Cost Recovery
IBT	Increasing Block Tariffs
IT	Information Technology
IGES	Institute of Global Environment and Society
KPI	Key Performance Indicators
NGO	Non-Government Organization
NRW	Non-Revenue Water
O&M	Operations and Maintenance
OECD	Organisation for Economic Co-operation and Development
SEAWUN	Southeast Asian Water Utilities Network
USAID	United States Agency for International Development
US-AEP	United States-Asia Environmental Partnership
WTP	Willingness to Pay
WFP	Water for People

Note: \$ refers to US Dollars

Providing access to clean, affordable water is a top global priority. Over 1.2 billion people worldwide lack access to safe water, more than half of whom live in Asia. World leaders at United Nations Millennium Summit in 2000 committed to the Millennium Development Goal 7, which aims to halve the proportion of people without access to safe drinking water and sanitation by 2015.

Given the pressures of rapid urbanization, meeting this challenge will require enormous infrastructure investment, as governments work to maintain aging water systems and expand services to peri-urban and rural areas. Devising financial strategies for covering the costs of these new investments poses a significant challenge. According to the United Nations Global Water Supply and Sanitation Assessment 2000 Report, funding limitations and inadequate cost recovery are major constraints to development.

Full cost recovery (FCR) occurs when a utility's revenues cover operational and other costs, and is an important indicator of the overall performance of a water utility. Financially strong utilities support efficient operations and provide good standards of service, which contribute to customer satisfaction, high willingness to pay and new investment opportunities.

Regional Full Cost Recovery Survey

Most water utilities in Asia are not achieving FCR due to low water tariffs, increasing operational costs, inadequate infrastructure development and weak management. To gain an improved understanding of FCR in Southeast Asia, the United States-Asia Environmental Partnership (US-AEP), a program of the United States Agency for International Development (USAID), in partnership with the Southeast Asian Water Utilities Network (SEAWUN), conducted an assessment of 15 water utilities in Indonesia, Malaysia, Philippines, Thailand and Vietnam, which had achieved or were close to achieving FCR.

Utility Performance Measures

Survey results provided key utility performance information, which revealed the following insights into their strategies for achieving cost recovery:

- Most surveyed utilities achieved FCR ratios (total costs/total revenues) below 1.00, which means

that revenues from tariffs are sufficient to cover operations and maintenance (O&M) costs, as well as depreciation and capital (primarily debt service) costs.

- Larger utilities were more efficient in their staffing than smaller utilities.
- Non-revenue water ranged from 15 to 46 percent, and was also an important factor in performance. Utilities with less physical water losses tended to achieve higher cost recovery rates.
- All surveyed utilities except one had accounts receivable below the World Bank recommended level of 90 days.
- The lower the average number of days to collect receivables, the better the utility's FCR ratio.

Key Enabling Conditions

Participating utilities ranked, by order of importance, the enabling conditions (or "factors") that have contributed to their achievement of FCR. The top five ranked factors were: (1) maintaining effective working relationships with government; (2) building core staff capabilities; (3) offering customer-oriented services; (4) developing a business operations plan; and (5) maintaining accurate recordkeeping, accounting and information technology (IT) systems.

Key Utility Actions

Participating utilities ranked, by order of importance, specific actions that they undertook to improve cost recovery. The top five ranked actions were: (1) reducing physical losses or non-revenue water; (2) improving operational efficiency; (3) improving metering; (4) increasing tariffs; and (5) expanding the number of connections. Utilities also identified specific implementation strategies and tools employed in undertaking these actions.

Tariffs

One notable finding is that while utilities considered the tariff environment (as part of government relations) as the most important factor, they ranked tariff increases as fourth in terms of key utility actions to achieve cost recovery. This seemingly incongruous result reflects the reality that tariff adjustments are largely outside of the management control of most utilities. Moreover, this result highlights the difficulty utilities face in obtaining

tariff increases due to perceived, even if not actual, political pressure.

Regional Workshop on Full Cost Recovery and Affordability

To disseminate the findings of this FCR survey and develop a regional agenda for promoting cost recovery while maintaining pricing affordability, SEAWUN, US-AEP and the Organisation for Economic Co-operation and Development (OECD) co-organized a regional workshop on December 13–14, 2004 in Bangkok, Thailand. Hosted by Thailand’s Provincial Waterworks Authority, the event attracted 60 participants, including senior water utility managers and experts from seven Southeast Asian nations, Europe and the United States. Other supporting partners included the Asian

Development Bank (ADB) and Water for People (WFP).

Based on the survey findings, participating utilities and experts shared regional experience, explored strategies for improving the financial health of water utilities and set an action agenda for regional cooperation. International experts from the OECD also presented information and facilitated discussion on the social dimension of water affordability in the context of cost recovery.

Workshop presentations and discussions made clear that there is no one method or system that utilities can apply in their pursuit of cost recovery. Rather, each utility must develop its own multi-faceted approach that takes into account sector enabling conditions and employs new strategies that make best use of unique capabilities and

Regional Action Agenda for Promoting FCR

Priority Areas	Regional and Country Actions
<p>Tariffs and Affordability</p> <p>Objective: Promote adoption of sustainable tariffs and adjustment policies that enable cost recovery while ensuring affordability</p>	<ul style="list-style-type: none"> • Revise national tariff legislation to reflect FCR and improve institutions and procedures • Develop regional tariff guiding principles • Strengthen stakeholder awareness of critical linkage between tariffs and affordability • Promote development of model performance contracts between utilities and local governments • Conduct targeted studies and affordability analyses
<p>Operational Efficiency</p> <p>Objective: Improve operational efficiency of utilities through adoption of innovative practices and cost-cutting methods</p>	<ul style="list-style-type: none"> • Develop non-revenue water policies and programs • Develop regional guidelines on O&M best practices • Adopt best practices for reducing input costs, such as energy and chemicals • Adopt new employment practices • Adopt new asset management policies and procedures to optimize capital requirements • Establish certification and training programs to improve staff performance • Establish programs to create cost center/functional accounting systems
<p>Leadership and Management</p> <p>Objective: Strengthen leadership and management practices of water utilities to improve overall financial performance</p>	<ul style="list-style-type: none"> • Develop action plans on utility autonomy (“true corporatization”) to facilitate adoption of new employment policies, hiring practices, salary scales, etc. • Establish staff and management incentives via performance measures, milestones and rewards • Develop operator certification and training programs to improve staffing capabilities, enhance transparency and provide incentives • Devise regional or provincial plans for achieving economies of scale

See Table 6 for the complete Regional Action Agenda

available resources. Survey results and case studies also confirmed that to affect change, utility managers must set clear priorities and then maintain discipline in implementing new plans and solutions, often in the face of political pressure.

As to water affordability, discussion centered on possible social policies and technical approaches that can help resolve the conflict inherent in promoting both the efficient use of water and equity in water pricing. Presenters observed that utilities should focus on improving the quality of service and raising customer awareness on the health benefits of clean water. Increasing block tariffs (IBTs) were viewed as important for increasing affordability for some users by cross-subsidizing rates and encouraging conservation behavior. By increasing operational efficiency and seeking tariffs that cover all capital and O&M costs, utilities would be able to expand coverage to better serve the unconnected poor.

Regional Full Cost Recovery Action Agenda

Workshop participants were unanimous in their support for regional exchange as a vital and useful strategy for utilities to improve operations, and ultimately expand the supply of clean water in the region. As a regional network, SEAWUN is well positioned to facilitate this exchange of best practices and information between utility managers and operators.

To support SEAWUN in its mission, workshop participants engaged in interactive small group discussions aimed at identifying key strategies and tools for promoting FCR in the region. Priority focus areas included: (1) tariff pricing and affordability; (2) operational efficiency; and (3) leadership and management.

For each focus area, workshop participants identified priority actions and possible implementation strategies and tools that could be employed at the regional or country levels, including lessons-learned workshops, specialized country or regional trainings, demonstration pilot projects, sustained utility-to-utility exchanges (“twinning”), publications and/or websites. Taken together, these findings serve as a regional action agenda to guide SEAWUN and other partner organizations, as well as individual utilities, in developing future regional and country FCR initiatives.

introduction

In partnership with the Southeast Asian Water Utilities Network (SEAWUN), the United States-Asia Environmental Partnership (US-AEP), a program of the United States Agency for International Development (USAID), conducted an assessment survey of 15 water utilities in Southeast Asia to identify key regional factors and actions that contributed to their achievement of full cost recovery (FCR).

The primary objectives of the survey were to:

- Gather and analyze key statistics and performance indicators on target utilities in the region; and
- Identify important enabling conditions (“factors”) and key actions taken by utilities in achieving cost recovery.

Successful utilities from Indonesia, Malaysia, Philippines, Thailand and Vietnam participated in the survey with assistance from national water associations. Consultants for US-AEP analyzed the survey results and reported the findings.

As a next step, water utility managers and experts from Southeast Asia, Europe and the United States joined a regional workshop in Bangkok on December 13 and 14, 2004 to discuss survey findings and explore strategies for promoting FCR, utility efficiency and affordability for the poor in the region.

Organized by US-AEP, SEAWUN and the Organisation for Economic Co-operation and Development (OECD), and hosted by Thailand’s Provincial Waterworks Authority (PWA), the workshop included 60 participants from national water associations and utilities in Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand and Vietnam, as well as regional financial and municipal water specialists. The Asian Development Bank (ADB) and Water for People (WFP) were also contributing partners.

The objectives of the workshop were to:

- Present regional survey findings on key performance indicators, enabling conditions and actions contributing to achievement of FCR, and identify key strategies for utilities to promote FCR;

- Address the social dimension of water affordability and willingness to pay in the context of FCR, and explore strategies for expanding access to water for the poor; and
- Develop a regional action agenda for cooperation between SEAWUN, member utilities and other partners to share best practices on achieving FCR, while considering affordability.

Report Outline

This report provides a summary of survey findings and workshop results in four parts:

- 1. Background:** Provides context for the regional survey and workshop, including the importance of full cost recovery and linkage to water affordability.
- 2. Survey Findings:** Provides a summary of the survey methodology and findings, including performance indicators, key FCR factors and actions and challenges and opportunities for utilities in the region.
- 3. Regional Workshop Proceedings:** Presents highlights and outcomes of case study presentations and discussions on full cost recovery and affordability.
- 4. Action Agenda:** Outlines the action agenda developed by participants for promoting improved cost recovery for water utilities in Asia as a primary means for strengthening access to clean water, especially for the poor. Priority areas include tariffs and affordability, operational efficiency and leadership and management of utilities.

Clean Water and Financing Challenges

Providing access to clean, affordable water is a top global priority. Over 1.2 billion people worldwide lack access to safe water, more than half of whom live in Asia. World leaders at United Nations Millennium Summit in 2000 committed to the Millennium Development Goal 7, which aims to halve the proportion of people without access to safe drinking water and sanitation by 2015.

Given the pressures of rapid urbanization, meeting this challenge will require enormous infrastructure investment, as governments work to maintain aging water systems and expand services to peri-urban and rural areas. Devising financial strategies for covering the costs of these new investments poses a significant challenge. According to the United Nations Global Water Supply and Sanitation Assessment 2000 Report, funding limitations and inadequate cost recovery are major constraints to development.

Full Cost Recovery

Full cost recovery for water services means covering all costs associated with operating, maintaining and financing a water system. In more technical terms, full cost recovery or FCR means that the revenues from water sales, primarily through tariffs, are equal to or exceed the amount required to cover all costs related to obtaining, processing and distributing water to the utility's customers. In other words, revenues cover not only operations and maintenance (O&M) costs, but also depreciation, taxes and cost of capital. (For more detailed information, see Annex 5.)

Full cost recovery is the principal indicator of financial health and overall performance of a water utility. Financially weak utilities often operate inefficiently, which can lead to high levels of non-revenue water, inadequate skills development, limited investment and poor service. Poor service, in terms of both water quality and quantity, can fuel customer dissatisfaction and low willingness to pay. As a result, utilities often have limited financial resources to maintain existing services and finance expansions. By contrast, financially strong utilities support efficient operations and provide good standards of service, which contribute to customer satisfaction, high willingness to pay and new investment.

“At least 1.2 billion people worldwide lack access to safe drinking water. Two million children die every year from infections related to water-borne diseases... the United States-Asia Environmental Partnership (US-AEP) is pleased to be working with water utilities in the region to share best practices to improve operational efficiencies and enable increased access to clean water, especially for the urban poor.”

Mr. Timothy T. Beans, Mission Director,
United States Agency for International Development,
Regional Development Mission/Asia (see Annex 4)

Achieving full cost recovery can be an important measure, therefore, of a utility's ability to improve and expand service. Financially stable utilities are able to promote rational consumption through pricing systems based on actual water use. Once equitable pricing is established, governments can reallocate subsidies to other public needs, such as education, health or transportation.

Difficulties in Achieving FCR in Asia

According to ADB, less than 30 percent of residents of most Asian cities enjoy 24-hour water supply. Low tariffs coupled with low service coverage have created great inequities, resulting in the poor paying far more than the rich. In Manila, for example, the ADB calculates that unconnected poor residents pay the equivalent of \$20 per month for 6 cubic meters (m³) of water, while connected residents pay \$4 per month for 30 m³ of water.

Full Cost Recovery Revenue Requirement

$$RR = O\&M + D + T + CC$$

RR = Revenue Requirement
O&M = Operations and Maintenance Costs
D = Depreciation
T = Taxes
CC = Cost of Capital (e.g., interest, return on equity)



Not surprisingly, most water utilities in Asia have difficulty achieving FCR due to a range of factors, including political pressure against water tariff increases, operational inefficiencies, poor infrastructure and mismanagement. For example, it is estimated that only five percent of Indonesia's 300 utilities are operating at full cost recovery levels and that 40 percent of utilities are unable even to recover their O&M costs. Trying to improve performance by focusing on a single area (e.g., tariff increase or reduction in non-revenue water (NRW)), however, can prove difficult because of inter-relationships between technical, financial and governance factors.

Nevertheless, some utilities in Asia are embracing new policies and methods that enable achievement of FCR. While improved water pricing strategies is one important mechanism for improved cost recovery, financial sustainability also depends on other factors, such as sound management, technical expertise, infrastructure coverage, balanced water consumption and production, low NRW, effective metering, recordkeeping, billing and collection practices and quality of service.

Southeast Asian Water Utilities Network

Headquartered in Hanoi, the Southeast Asian Water Utilities Network (<http://www.seawun.org/>) is a regional membership organization of water utilities and national water utility associations whose mission is to "help members improve their performance in the delivery of water supply and sanitation services, including improving efficiency in operation and management, achieving financial viability and advocating for reforms in the sector to improve the policy environment." As a regional network, SEAWUN provides a platform for members to exchange information, experience and know-how by participating in technical training, workshops and other activities in four core program areas: (1) full cost recovery; (2) benchmarking; (3) unaccounted-for-water; and (4) certification and training.

Ensuring Affordability of Water Services for the Poor

Raising tariffs can be an effective strategy for utilities to meet rising costs of infrastructure and operations, but also can have significant impacts on low-income populations in Asia. To address these social concerns in the context of full cost recovery, governments can adopt affordability measures in tandem with new water tariff structures that reflect the true costs of operations. In many Asian cities, however, the poor are unconnected to water supplies and pay much higher prices than those who are connected. In these situations, tariff increases could actually enable utilities to expand services to the poor.

In cases where raising tariffs will result in unaffordable prices (a threshold of five percent of household income is commonly used), then the following measures should be considered: using increasing block tariffs (IBTs), applying cross-subsidization between different consumer groups, providing targeted assistance for the poorest populations, avoiding high one-time connection fees and reducing value-added tax.

At the regional workshop, experts from Europe and Asia, in partnership with OECD, shared experiences on social affordability policies that protect disadvantaged populations, and at the same time ensure full cost recovery. (See Part 3 for further information on affordability strategies and case studies.)

full cost recovery survey findings

Survey Background and Methodology

In cooperation with national water utility associations and SEAWUN, US-AEP conducted a survey of 15 successful water utilities in Indonesia, Malaysia, Philippines, Thailand and Vietnam that achieved or were close to achieving full cost recovery (see *list of participating utilities in Table 1 and survey form in Annex 10*).

The primary objectives of this survey were to:

1. Gather and analyze key statistics and performance indicators on target utilities in the region; and
2. Identify important enabling conditions (“factors”) and key actions taken by utilities in achieving cost recovery.

Local coordinators from the national water associations and US-AEP selected participating utilities based on their progress towards achieving FCR. In technical terms, this meant that the utilities had realized an O&M ratio of less than one (O&M costs/revenues), and an FCR ratio of less than or close to one (O&M, depreciation, taxes, interest/revenues). Some associations applied additional criteria, including size, geographic representation and legal structure of the utility (e.g., government departments, government-owned corporations or private corporations).

By completing a survey questionnaire and participating in direct interviews, utilities provided financial statistics, which allowed calculation of key performance indicators. Utilities also identified key factors and actions that contributed to their achievement of full cost recovery, as well as narrative information.

- **Utility Performance** – Core statistical information providing insights into operational performance and implications for FCR include: (1) O&M and FCR ratios; (2) staffing efficiencies; (3) non-revenue water; (4) service coverage; and (5) accounts receivable collection period.
- **Factors** – Enabling conditions that allowed utilities to take key actions include relationships with local government/regulator, quality of management, training programs, regulatory environment, customer

orientation, customer/ratepayer education, civil society oversight and management tools, such as accounting systems, IT, business plans and capital planning.

- **Actions** – Specific activities or interventions by utilities are those that led to a reduction in costs (e.g., energy, chemicals and labor) and/or an increase in revenues (e.g., tariff increases, improved billing and metering, reduction in non-revenue water, more customers).

US-AEP aggregated findings and completed a sectoral, country and regional analysis, based in part on discussions with utility managers and representatives from national utility associations. (See *Annex 6 for an overview of survey results, and Annex 1 for additional survey information*).

Survey Findings

To understand utility performance and enable comparison between countries and individual utilities, the survey captured key statistical information and performance indicators, including: (1) population served; (2) number of connections; (3) production capacity; (4) actual production; (5) percent of water fully treated; (6) O&M ratio; (7) FCR ratio; (8) legal status; (9) production costs; (10) average sale price; (11) non-revenue water; (12) accounts receivable collection period; and (13) number of staff per 1,000 connections (see *Table 1*).

In reviewing *Table 1* and other survey information, it is clear that the financial performance of a utility cannot be attributed to one single factor (e.g., higher rates); rather, it is the result of various policies and actions.

Government Roles and Tariff Policies

Survey results revealed that responsibility for managing water supply services varies by country. In Indonesia and the Philippines, authority rests with municipalities, while in Malaysia and Vietnam, water supply is a state or provincial function. However, new developments are on the horizon in Malaysia that will shift key water supply functions from the state to the federal government and will establish an independent regulatory body. In Thailand, the national government assumes responsibility

Table I : Key Statistics and Performance Indicators of Surveyed Utilities

Utility	Pop Served %	No Conn	Prod Cap (m3/day)	Act Prod (m3/day)	Rcvcs Full Trmnt %	O&M Ratio	FCR Ratio	Legal Status **	Prod Cost (\$/m3)	Avg Sale Price (\$/m3)	NRW %	Acct Rcvble Days	# Staff / 1000 Conn
Indonesia													
Bogor	65	66,598	35,667	40,767	70	0.70	0.96	1	0.15	0.18	30.7	38	6.5
Makassar***	72	121,128	202,176	192,432	100	0.82	1.21	1	0.09	0.25	46.2	99	6.0
Malang	67	80,382	1,255	1,514	0	0.77	0.80	1	0.11	0.21	33.4	49	7.0
Medan	88	329,660	416,189	414,633	79	0.88	0.97	1	0.14	0.17	20.3	52	3.3
Malaysia													
Johor	99.7	773,256	1,436,000	1,291,000	100	0.49	0.90	3	0.06	0.22	37.5	30	2.2
Penang	99.9	402,777	1,166,000	759,000	100	0.63	0.80	2	0.05	0.17	20.0	49	2.7
Sibu	96	44,665	130,000	87,000	100	0.82	1.08	1	0.24	0.21	28.0	56	4.6
Philippines													
Dipolog	35	7,056	8,497	6,586	53	0.64	0.82	2	0.08	0.38	23.9	38	5.3
Marilao	50	8,870	14,202	9,291	0	0.63	0.72	2	0.14	0.40	18.5	28	5.0
Leyte	44	25,004	33,091	29,746	99	0.70	0.95	2	0.12	0.32	29.5	51	6.5
Thailand													
MWA***	82.5	1,540,203		4,153,425	100	0.32	0.64	4	0.23	0.29	30.0	31	3.0
PWA	72	1,931,678	2,873,088	2,131,586	100	0.33	1.04	4	0.22	0.29	26.0	14	3.0
Vietnam****													
Hai Phong	85	140,176	176,000	122,000	100	0.56	1.15	2	0.11	0.18	28.0	10	10.1
Thua Thien-Hue	91.5	54,467	99,100	56,877	100	0.56	1.00	2	0.11	0.15	20.0	2	5.8
Ba Ria - Vung Tau	70	63,413	82,200	85,764	100	0.57	1.21	2	0.14	0.16	15.0	6	5.7
WB Recommendations*						0.68					23.0	90	5.0

Notes:

- * Based on the top 25 percent of best performing utilities in developing countries
- ** Legal Status - 1 Department, 2 Government Corp/Enterprise, 3 Private Sector, 4 Government & PPPs
- *** Ratios based on financial statements
- **** Includes contributions to various funds out of profits in the FCR ratio

through the Metropolitan Waterworks Authority (MWA) (greater Bangkok), and the Provincial Waterworks Authority (PWA) (all other provinces).

The degree of government support for capital expenditures also varies by country. For utilities in the Philippines, MWA in Thailand and Johore in Malaysia, there is no government support. By contrast, all utilities in Indonesia and Vietnam, and PWA in Thailand enjoy partial government support. Malaysia also provides significant financial backing to all utilities except privatized ones.

As for tariffs, which are central to achieving FCR, adjustments have political implications, and are achieved with some difficulty in all surveyed countries except the Philippines (see Table 2). For example, in Indonesia, it is not uncommon for tariff increase approvals by the local government to occur once every five to six years. In places like Malaysia, although a small number of providers have increased tariffs in the last two or three years, more than half of providers have not received tariff increases in 10 to 20 years.

By contrast, water utilities in the Philippines are able to secure sufficient tariff increases to cover their true operations and maintenance costs. Responsibility for tariff setting and technical assistance rests with the Local Water Utility Administration (LWUA), a national, technical organization. Subject to less political pressure, LWUA typically adheres to its tariff policy, which advocates for rates to reflect the full cost of service delivery.

To further assist utilities, Philippine national policy allows water utilities to increase rates by up to 60 percent, and

to approve two- or three-step incremental increases in one review process. An example of such a rate increase implementation program can be seen in the Metro Leyte utility, where rates increased by over 50 percent for each non-wholesale customer type between May 2003 and December 2004. Ultimately, tariff adjustments must be balanced with affordability considerations so that rates do not exceed the recommended Philippine affordability criterion of five percent of household income.

Cost recovery may soon accelerate in Vietnam as a result of a recent government directive requiring all provincial water supply companies to set tariffs based on the full and accurate inclusion of all operations and maintenance costs, depreciation, debt payment and return on investment. (For more detailed country-specific information, see presentations in Annex 6 and additional survey information in Annex 1).

Vietnam Issues National Directive on Cost Recovery

In 2004 the Vietnamese national government issued a Directive 04/2004 requiring all water supply companies to set tariffs based on the full and accurate inclusion of all operations and maintenance costs, depreciation, debt payment and return on investment. This directive also mandates tariff pricing to cover new investments.

Two water supply companies have already adjusted their tariffs to comply with the directive and it is anticipated that other utilities will adjust their tariffs by early 2005. The Vietnamese Water Supply and Sewerage Association is confident that all companies will be able implement this policy by the target date. Overall, Vietnam's new directive sets an important precedent for the region.

Table 2: FCR Policies and Tariff Adjustments

Country	National Policy on Cost Recovery	Tariff Adjustments
Indonesia	Yes	Difficult; Increase only every 5-6 years
Malaysia	No	Difficult; 50 percent of utilities with no increase in 10-20 years
Philippines	Yes	Not difficult; national, technical agency implements tariff increases
Thailand	No	Difficult
Vietnam	Yes	Previously difficult

Analysis of Utility Performance

In assessing the financial performance of successful utilities in the region, it is clear that various policies and actions contribute to the financial success and performance of utilities. Key performance indicators that measure the financial health of a utility include: (1) O&M and FCR ratios; (2) staffing efficiencies; (3) non-revenue water; (4) service coverage; and (5) accounts receivable collection period.

O&M and FCR Ratios

- All surveyed utilities had O&M ratios less than one, which means that the revenues from tariffs cover operations and maintenance costs (see Figure 1).
- Over half of the surveyed utilities have an O&M ratio below 0.68, which is the World Bank recommended O&M ratio based on the top performing utilities in developing countries.

- The majority of surveyed utilities also achieved FCR ratios just below 1.00, which means that the revenues from tariffs are sufficient to cover O&M costs, as well as depreciation and debt service costs. However, for most of the utilities to expand coverage, tariffs will need to be further increased to cover the additional debt service costs related to outside financing and/or the respective governments will need to inject capital.

Staffing Efficiencies

- The survey confirmed common knowledge: larger utilities are more efficient in their staffing than smaller utilities, as measured by the number of staff per 1000 connections or number of connections per staff.
- Improving staffing efficiency is a critical goal, since labor can constitute over 30 percent of operational costs (see Figure 2).

Non-Revenue Water

- Non-revenue water (NRW), which ranges from a low of 15 percent in Ba Ria Vung Tau, Vietnam, to a high of 46 percent in Makassar, Indonesia, is also an important performance factor. Utilities with low physical water losses typically achieve higher levels of cost recovery.
- Reducing NRW is especially important for utilities that use full production capacity, since improvements can offset some capital projects in the short term. This can be seen in Ba Ria Vung Tau where NRW is the lowest (15 percent), while the actual production exceeds production capacity by 4 percent.
- NRW is also especially important for utilities with a lower service coverage level (percent of population served) since any water lost could service new customers. This improvement strategy is relevant for many of the utilities, including Bogor, Makassar, Malang and Leyte, whose NRW substantially exceeds the 23 percent level recommended by the World Bank.

Service Coverage

- Average service coverage in the five countries (not among the surveyed utilities) ranges between 35 and 70 percent, except for Malaysia, which nearly has universal coverage.
- The level of population served in the region, aside from Malaysia, is still low even among stronger utilities. This is especially true in the Philippines and to a lesser extent in Indonesia.

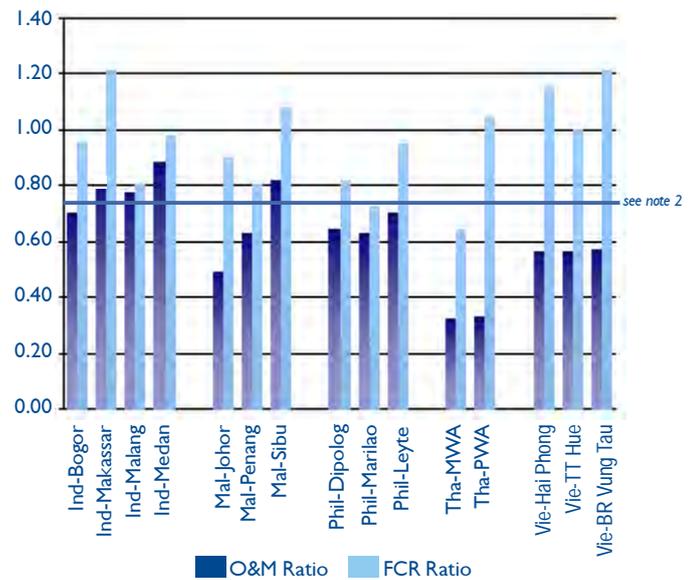
Accounts Receivable

- All surveyed utilities except one have accounts

receivable below the World Bank recommended level of 90 days.

- Survey analysis also revealed the lower the average number of days to collect receivables, the closer the utility is to achieving FCR. Although this collection ratio alone does not translate into a stronger company financially, it does reflect on the quality of management. Policies and actions that lead to a stronger collection rate include better accounting, metering, meter reading and billing and collection procedures.

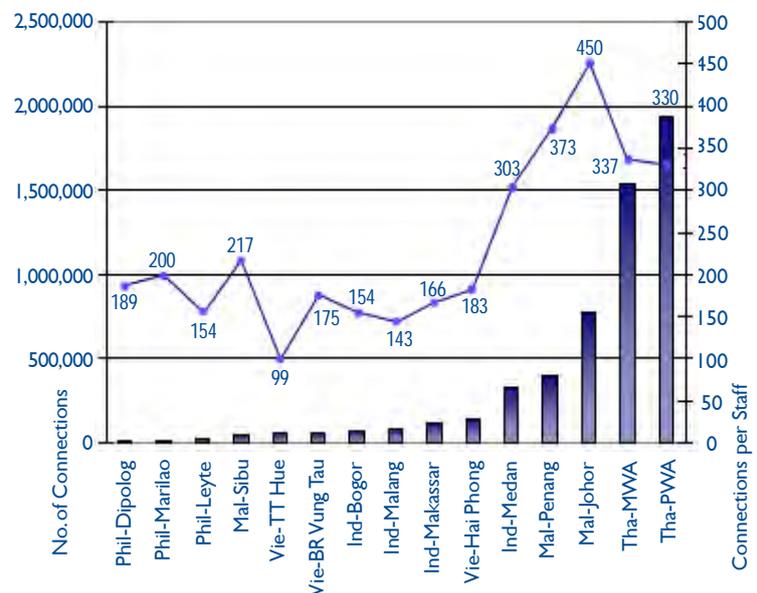
Figure 1 : O&M Coverage vs. FCR Coverage



Note:

1. As the Vietnamese utilities contribute profits to various funds, their FCR ratios may understate their success.
2. World Bank recommended O&M ratio of 0.68 based on top performing utilities in developing countries

Figure 2 : Relationship Between Size of Utility and Staffing Efficiency



Key Factors for Improving Cost Recovery

As part of the survey, utilities ranked in order of importance five key enabling conditions, or “factors,” that had a positive impact on efforts to improve cost recovery. According to the surveyed utilities, these factors provided the basis for decision-making on specific courses of action that enabled them to achieve FCR.

As indicated in Table 3, utilities ranked the tariff environment (as part of government relations) as the most important factor, a finding that is consistent with a conclusion made in ADB’s Asian Water Supplies book (2004): “It is the reluctance of elected officials to increase tariffs that has, more than any other single factor, constrained water supply development in terms of quality of service and coverage.”

Government Relations (local or central)

- Utilities selected their relationship with government as the most important factor, based primarily on the difficulties they face in obtaining tariff increases. For utilities where local governments also fund capital expenditures, this relationship becomes even more important.
- Most surveyed utilities cited regular reporting and meetings as a principal means for improving the relationship. One utility that proactively informed the local government of its excessive staffing ratio did not receive objections later when it announced plans to retrench staff.

Attitudes and Professional Background of Personnel

- Not surprisingly, surveyed utilities selected this as the second most important factor, since the success of an organization is widely known to depend on its management (leadership) and human resources.
- Vietnam placed so much importance on leadership

that they classified FCR factors into two groups: leadership and “everything else.”

- Some utilities cited the importance of the attitudes and professional background of board members and local government staff for effective communication.

Customer-oriented Service

- Surveyed utilities recognized that good service builds a company’s reputation, which helps attract new customers while minimizing customer and governmental objections when tariffs need adjustments.
- Utility efforts to improve customer service included establishing a call center and an available rapid response team to address time-sensitive issues like pipe bursts or leaks.
- Some utilities, like Medan, also used third-party billers to obtain customer feedback while conducting door-to-door billing. This strategy is an easy and effective way to understand customer needs rather than only receiving feedback from customer complaints.
- Hai Phong’s commitment to its customers was reflected in its internal regulations, which require each division to develop and implement a customer service plan, as well as prepare quarterly and yearly customer development reports.

Medium-term Planning

- Planning is essential for utilities to identify priority projects and timeframes for implementation.
- PWA described the business plan as the compass of the organization, providing it with a vision, mission, objective, indicators and projects for each year.
- Johor’s plan laid out the direction of its business using key performance indicators (KPIs), which provided a method for agreeing on future cost and revenue drivers and supporting eventual tariff increases.
- Sibul’s experience underlined the importance of the utility and local government jointly reviewing and agreeing on the utility vision, mission and action plans on a periodic basis.

Accuracy of Recordkeeping, Accounting and IT

- This factor is also deemed critical to achieving FCR as it relates to metering, meter reading and billing and collection.
- Accurate data allows management to identify problems and make sound decisions. Through better computer-based recordkeeping and accounting, the utility can better understand, monitor and manage cost and revenue centers.

Table 3: Key Factors for Improving Cost Recovery

Ranking	Key Factors	Relative Importance
1	Government relations (local or central)	20%
2	Attitudes and professional background of personnel	16%
3	Customer-oriented service	13%
4	Existence of a medium-term business plan	8%
5	Accuracy of recordkeeping, accounting and IT	7%
6	Development of a benchmarking / KPI system	7%

Key Actions for Improving Cost Recovery

As part of the survey, utilities ranked in order of importance specific priority actions that they took to improve cost recovery (see Table 4). Top actions identified by utilities were not surprising and reflect routine actions generally taken by utilities to improve financial performance.

One notable finding is that while utilities considered the tariff environment (as part of government relations) as the most important factor, they ranked tariff increases as fourth in terms of key utility actions to achieve cost recovery. This seemingly incongruous result reflects the reality that tariff adjustments are largely outside of the management control of most utilities. Moreover, this result highlights the difficulty utilities face in obtaining tariff increases due to perceived, even if not actual, political pressure.

To a lesser extent, this ranking could also reflect the limited importance that the utilities themselves place on tariff increases. Interviews with several utilities further supported this view. In fact, some utilities seemed to be opposed to increasing tariffs and believed that tariff increases somehow violated their public service mandate. Instead, they would rather supplement the revenue shortfall by applying for government grants. Oddly, these same utilities favored full cost recovery. These conflicting attitudes about tariff increases may account for the high degree of innovation and creativity of specific utility actions and implementation strategies across the region (see Table 5, page 14).

Illustrative examples include the following:

- In Indonesia, the Medan utility took steps to reduce NRW by carefully monitoring unusually high consumption patterns of large customers on a monthly basis.

Table 4: Key Actions for Improving Cost Recovery

Ranking	Key Actions	Relative Importance
1	Reduction in physical losses	22%
2	Improvements in operational efficiency (reducing power, labor, chemical costs)	19%
3	Improvement in metering (reading, replacement, repair)	17%
4	Tariff increase	12%
5	Aggressive increase in the number of connections	12%
6	Improvement in billing (invoicing, collection, payment methods)	9%

- In Vietnam and the Philippines, several surveyed utilities adopted strict disconnection policies for non-payment and strict penalties for water theft.
- In Thailand, both MWA and PWA reduced labor costs and increased staff efficiency through early retirement policies. Moreover, both water authorities improved operational efficiency by annually measuring performance using the government's KPIs.
- The Penang Water Supply Corporation in Malaysia and the Ba Ria Vung Tau utility in Vietnam improved operational efficiency by requiring the use of high quality pipes and meters for all new connections and carefully supervising such installations.

Principal Challenges to Achieving FCR

Although utilities targeted in this survey have achieved cost recovery by devising innovative strategies and interventions, most utilities in Southeast Asia are far from attaining financial sustainability. Based on survey analysis and discussions with national water associations, utility managers and experts, it is clear that most utilities in the region face significant challenges related to tariff setting, human and institutional capacity, infrastructure development and financing. (For more detailed information, see presentation in Annex 5.)

Principal challenges to achieving FCR include:

Revenues/Tariffs

- Most utilities in the region have insufficient revenue to cover O&M costs and capital costs.
- With insufficient revenues, utilities lack incentives to extend coverage to the poor, promote water conservation, reduce NRW and properly manage meters and infrastructure.

Personnel

- Low salaries, benefits and professional advancement opportunities prevent many utilities from attracting quality managers and technicians.
- Government employment policies often result in overstaffing at utilities.

Operations and Maintenance

- Many utilities in the region make inefficient use of energy/fuel, lubricants and chemicals.
- For cash-strapped utilities, maintenance is a low priority, which can reduce the life of the asset. Poor maintenance often results in pipe leakages and high NRW.

Capital Expenditure (Depreciation)

- Many utilities struggle to establish financial autonomy and prioritize capital projects.
- Utilities often do not consider inflation versus replacement costs for their operations and do not properly analyze the depreciation costs of an asset against the principal still due on their outstanding debt.

Cost of Capital

- Financially-strained utilities typically secure high interest loans and can only borrow funds if the government or some other institution guarantees the debt.
- Utilities do not pass rising costs associated with variable interest rates on to customers.

General and Administrative

- Many utilities lack important internal controls, such as operating policies and procedures, as well as timely, accurate and transparent billing and accounts receivable records.
- Mismanagement of meter installation, maintenance, reading and billing and collection also contribute to inefficient operations.

Government Relations

- Many government offices do not fully understand the importance of FCR and how financially stable utilities can simultaneously increase service quality, extend coverage to the poor and promote customer satisfaction.
- With a better understanding of the benefits of FCR, governments are more likely to adopt, implement and enforce rationally-based and fair water pricing tariff legislation.

Customer Relations

- Users in the region too often assume quality water and wastewater services should be free or low-cost. Educating customers about the true costs of operating and maintaining quality water services is crucial for promoting FCR.
- Paying customers must understand that they are subsidizing illegal connections. Artificially low water bills may, in fact, serve as a disincentive for customers to pay, since they reinforce the notion that water services are low-cost commodities.

Preliminary Considerations

Based on the survey findings and analysis, the following preliminary considerations were developed for promoting FCR through improved policy measures and capacity-building. Although these considerations were

prepared specifically for discussion at the regional workshop organized by US-AEP, SEAWUN and OECD on December 13-14, 2004, they may be useful more generally for national and local governments, and utilities operating in the region.

National Level

1. **Adopt a National FCR Policy:** Countries should consider adopting full cost recovery policies that address issues of affordability and extend access to the poor. Any adopted policy should include a reasonably detailed outline of costs to consider, including depreciation and cost of funding, when determining the revenues required to achieve FCR. Utilities should not follow these policies rigidly, since affordability concerns should be addressed in tariff setting (cross-subsidization), or if absolutely necessary, through specific government subsidization of connecting and possibly providing water to target lower income customers.
2. **Establish an Independent Regulatory Body:** Given the difficulties many surveyed utilities face in obtaining tariff adjustments, an entity that is not subject to political pressure should be responsible for completing tariff reviews and adjustments. This entity should (1) provide the necessary expertise and authority to evaluate a utility's financial performance, and (2) work to protect consumer interests and needs.

Local Government Level

3. **Develop Quantitative Performance Targets:** Regardless of whether or not a regulatory body is established, local governments should consider developing quantitative performance targets to evaluate utility performance. Performance indicators and ultimate targets should be realistic, achievable and understandable to all parties involved. Initially, since efficiency data on utility performance is limited, local governments could negotiate the indicators and targets with utilities and measure performance on a periodic basis (e.g., year-to-year). Over the longer term, the performance indicators could also be used to compare performance with other utilities.

Existing data, such as financial statements, could provide initial benchmarking information necessary for setting performance indicators. Utilities that achieve these performance indicators, in turn, should be rewarded with more autonomy, including offering bonuses for management and employees. Thailand's experience has demonstrated that KPIs

Table 5: Specific Utility Implementation Strategies for Key Actions

Key Actions	Utility Implementation Strategies
<p>Reduction in physical and other losses</p>	<ul style="list-style-type: none"> • Hold scheduled checks and inspections of pipelines, provide rapid response to repair leaks and analyze water loss for preventive and corrective action (Sibu NRW team). • Implement a four-year NRW reduction project (PWA). • Use high quality pipes and carefully supervise installation (Ba Ria Vung Tau). • Install high quality pipes and develop a procedure for enforcement and control through Material Approving Technical Committee (Penang). • Minimize water theft through night shift inspection and application of a strict penalty per Water Crisis Act (Leyte and Marilao). • Train community members as plumbers to repair in-house connections, which in turn provides new employment opportunities (Leyte). • Request communities to report leakages (Leyte, Sibu). • Conduct monthly spot checks on internal plumbing system for early leakage detection (Sibu). • Make manual pressure adjustments on entire network using upstream system pressure relief valves and downstream booster pumps (Ba Ria Vung Tau).
<p>Reduction of costs and improvements in operational efficiency</p>	<ul style="list-style-type: none"> • Reduce personnel cost through hiring freeze and voluntary early retirement of highly paid senior staff (PWA). • Reduce power costs by scheduling to avoid peak hour rates and, where appropriate, switch to time-of-use power meters (PWA). • Adopt electricity-saving campaigns and reduce manpower per shift in pump operation (Sibu). • Use cheaper chemicals (Sibu) or identify optimal chemical doses with ‘jar tests’ (Makassar, PWA). • Adhere strictly to budgeted costs and expenditures, except in emergency situations for pipe repairs (Malang, Bogor). • Monitor monthly costs at all cost centers, which are established based on service areas (Hai Phong). • Encourage utility employees to develop creative methods for increasing efficiency (several surveyed utilities).
<p>Improvements in metering</p>	<ul style="list-style-type: none"> • Meter and bill all supplies, except public hydrants (most surveyed utilities). • Replace meters automatically after five to eight years of service (many surveyed utilities). • Adopt a policy on testing meter performance before installation (Penang). • Replace slow and non-registering meters immediately (Sibu). • Impose stiff penalties on meter readers who fail to read the meter correctly (PWA). • Outsource meter reading to third parties (Makassar and PWA). • Install water meter protectors to reduce tampering (Marilao). • Centralize meters by grouping between two and ten water meters in one location. This strategy simplifies meter installation, maintenance and reading (Dipolog).

Key Actions	Utility Implementation Strategies
Tariff increase	<ul style="list-style-type: none"> • Initiate public awareness campaigns/hearings/education. Public education includes visits to water treatment plants to provide the public with an appreciation of the costs of treating and transporting water (most surveyed utilities). • Consider the timing of a proposed tariff increase to avoid elections (most surveyed utilities). • Propose legislation allowing the utilities to achieve FCR (several surveyed utilities). • Propose legislation authorizing increases in rates (Philippine utilities). • Contract with experienced NGOs to disseminate tariff increase plans to the poorer segments of the public to raise awareness and minimize public opposition (Makassar). • Conduct customer satisfaction surveys prior to tariff increases to identify whether consumers are satisfied with service and will support an increase (Bogor). • Involve unserved populations to advocate tariff increases as they are likely to benefit from expanded services funded by new tariffs (Makassar). • Propose minimal increases for poorer customers to make tariff increases more acceptable to politicians (Medan). • Stagger increases that are approved in one tariff review (Philippine utilities).
Increase in number of connections	<ul style="list-style-type: none"> • Focus on large consumers such as industrial and large businesses (PWA). • Target populations in areas where there is a ban on groundwater abstraction due to land subsidence, and in areas where there is a water surplus to offer reduced connection fees and water tariff discounts (PWA). • Offer quick installation process for new customers (Medan). • Allow customers to pay for new connection fees on credit (Medan). • Implement campaign programs in unserved areas (many surveyed utilities).
Billing and collection practices	<ul style="list-style-type: none"> • Use joint collection agencies and multiple payment points (most surveyed utilities). • Review customer classification during field inspection and modification if appropriate (Makassar). • Offer discounts to customers who pay bills on time (Makassar). • Apply initial clamping using lockable clamps as first warning, followed by removal of meter if bills are not paid (Penang). • Enforce disconnection policy strictly (Vietnam and Penang). • Reduce disconnection period from two months to one month (Marilao). • Offer door-to-door billing by third parties who can also solicit feedback from customers about the utility's service (Medan).

can be useful in encouraging utilities to improve their performance. Similarly, the experiences of Medan and Hai Phong also demonstrate that linking the utilities' performance with management incentives can improve overall performance.

Utility Level

4. Tariff Review Measures: When applying for a tariff review approved by local governments, utilities should address the concerns of both local governments and the public. The list below provides an illustrative menu of options for utilities to consider:

- *Advocate Affordability and Tariff Increase Issues Together:* Address issues of affordability in proposing the tariff increases. This strategy will address a primary concern of governments and councilors in granting a tariff increase.
- *Analyze Unserved Population Rates:* Consider conducting a survey on how much the unserved population has to pay for water. In areas where alternative sources of water are not available, the unserved often have to buy water from vendors and pay from 7 to 35 times more per cubic meter than those served with piped water. Arguably, if tariffs are increased, the utility will have the ability to expand service to the unserved. When resources are not available to conduct a survey, the utility may be able to rely on results from surveys conducted in other similarly-situated towns.
- *Examine Other Arguments to Support FCRTariffs:* Highlight backlogs in service delivery and the government's inability to fund the backlog, and explain how a tariff increase could address these financial shortcomings. While backlogs in service delivery can be construed as a weakness, it could also strengthen the argument for FCR tariffs.
- *Express Tariff Increases in Easily Understandable Terms:* Express the implication of the tariff increase in the usual terms (e.g., 20 percent increase, or 30 cents/cubic meter), as well as in new terms, such as cost per liter or kiloliter.

5. Maintain Regular Communication with Local Government: Utilities should consider maintaining regular communication, written and/or verbal, with local governments on the status of water supply service and potential problems. When reporting financial information, for example, utilities must address concepts of depreciation and its importance in repayment of principal on loans, and the funding

of additional capital projects from internally generated funds (e.g., asset replacement).

6. Emphasize Strong Leadership and Management: Based on the survey findings, successful utilities depend on strong management and leadership (attitudes and professional background), which in turn require competitive recruitment, commensurate salaries and incentives (career path and planning incentive pay schedule). To increase the pool of qualified candidates, successful utilities should consider recruiting water utility managers from both inside and outside their organizations. Such recruitment strategies tend to make the profession of water utility managers more attractive, since career advancement is not limited to promotion within a particular utility.

7. Develop Customer-Oriented Services: Utilities should consider emphasizing customer-oriented service strategies based on the survey results listed in Table 5.

8. Establish a Medium-Term Business Plan: Successful utilities typically gauge their financial viability and improvement by developing and following a medium-term business plan. To stay on track with the business plan, utilities should consider relying on accurate recordkeeping, accounting and IT, as well as careful analysis of capital investment. Including the ratemaking authorities in the business plan process will emphasize the importance of achieving FCR and may facilitate an increase in rates.

9. Adopt Cost-Cutting Measures: To reduce costs, utilities should consider implementing strategies such as those identified in Table 5.

10. Adopt Procedures to Promote Transparency: Transparent and independently verifiable information is critical to all stakeholders. For employees, this issue becomes even more important as the utilities adopt incentives. For investors, this (audited) information will reduce uncertainty and therefore the cost of financing and encourage increased investment. For ratepayers (customers), transparency and reliable information will facilitate efforts to increase tariffs to levels that are required to achieve FCR. For governments/regulators, accurate information provides a clear method for determining proper rates. It is critical that the parties responsible for taking the steps to attain transparency and independently verifiable information do not fear negative consequences in the short term.

regional workshop proceedings

Regional Workshop on Full Cost Recovery and Water Affordability

To disseminate the findings of this FCR survey and develop a regional agenda for promoting cost recovery while maintaining pricing affordability, SEAWUN, US-AEP and OECD co-organized a regional workshop on December 13–14, 2004 in Bangkok, Thailand (see *Annex 2 for workshop agenda*). Hosted by Thailand's Provincial Waterworks Authority, the event attracted 60 participants, including senior water utility managers and experts from seven Southeast Asian nations, Europe and the United States. Other supporting partners included ADB and Water for People.

During the workshop, participating utilities and experts shared regional experience, explored strategies for improving the financial health of water utilities and set an action agenda for regional cooperation. International experts also presented information and facilitated discussion on the social dimension of water affordability in the context of cost recovery.

What follows is a summary of featured case studies on strategies for achieving full cost recovery while addressing affordability.

Strategies for Improved Policies and Institutional Arrangements

A utility's ability to achieve cost recovery can depend in part on effective policies and institutional arrangements. Appropriate tariff adjustment policies can yield significant results by allowing utilities to cover not only operations and maintenance costs, but also depreciation interest payments and a return on equity for private sector utilities.

Achieving such tariff adjustments, however, requires utilities to build strong relationships with government authorities. Improving institutional arrangements also can have an important impact on increasing cost recovery. Presentations from Indonesia, Cambodia and the United States illustrated the effects specific tariff policies and institutional arrangements can have on utilities' ability to achieve cost recovery (see *case study presentations in Annex 7*).

INDONESIA

Optimizing Tariffs through Effective Relationships with Local Government

Mr. Subahri Ritonga, Administration & Finance Director, Medan Water Utility

To secure a much needed tariff increase, the Medan Water Utility recognized that it needed to develop strong relations with and garner support from both the local authorities and local community through negotiations and awareness raising campaigns. Recognizing the political challenges associated with tariff increases, the utility first offered to provide the government free water service for places of worship and public facilities in the community.

The utility also employed creative tariff restructuring by maintaining the tariff per unit for low-income users, while reducing the size of the consumption block. These changes allowed low-income users who maintained a consumption at or below basic needs (10 m³ per month) to enjoy the same tariffs, while those who consumed above that amount paid higher tariffs.

To raise awareness in the community and minimize public opposition to the proposed rate increase, the utility invited customer representatives to tour the water processing facility and learn about the costs associated with operating the water supply system. The utility also offered seminars on water conservation and efficiency. In the end, due to strategic negotiations with the government and its public awareness campaigns, the Medan Water Utility was able to obtain a justified and reasonable tariff increase in 2003.

CAMBODIA

Institutional Restructuring to Improve Cost Recovery

Mr. Ek Sonn Chan, General Director, Phnom Penh Water Supply Authority

The turn-around story of the Phnom Penh Water Supply Authority (PPWSA) is quite remarkable, since this utility was able to transform its lagging operations and achieve cost recovery over a ten-year period from 1993 to 2003. The numbers speak for themselves: service coverage

expanded from 25 percent to 85 percent; the staff/connection ratio decreased from 22 to 4; water supply availability rose from 10 hours a day to 24-hour service; the number of connections increased from 26,881 to 120,000; physical water losses scaled back from 72 percent to 16 percent; the collection ratio improved from 48 percent to 99 percent; and financially, the utility moved from being heavily subsidized to achieving full cost recovery.

PPWSA attributes its success to a combination of both external and internal factors and strategic interventions. Critical external factors included support from the government, donors and unconnected citizens in revising the tariff structure. Internal factors consisted of a fundamental change in the utility's culture to treat personnel equally, major management reorganization and increased emphasis on staff training and decentralized decision-making.

UNITED STATES

Policies for Achieving Full Cost Recovery

Mr. Khanh T. Le, Director of Special Projects,
Willows Water District, Centennial, Colorado

Willows Water District in Colorado, U.S. has implemented a variety of strategies to achieve cost recovery, including targeted efforts to reduce non-revenue water, strong management policies governing operations and maintenance, internal management control, strong accounting and financial statements and public outreach programs to stay informed of both community and business needs.

The Willows Water District also consults with civil society in tariff setting and other decisions. By state law, all meetings of the District's Board of Directors involving water usage rates, budgets, connection fees and property taxes are open to the public. Public notice of these meetings must be announced in newspapers, TV and other available media, and all meetings are conducted on the record. To ensure compliance with all these mandatory public requirements, the District must submit quarterly budget-to-actual financial reports, as well as annual audit reports. Measures like these designed to enhance public involvement ultimately increase transparency and accountability of water utilities to their customers.

Strategies for Improved Management and Cost-Cutting Measures

Without the promise of significant future tariff increases, many utilities in the region have achieved improved cost recovery by adopting cost-cutting measures. Core

strategies include reducing physical water losses by repairing leaks and installing high quality pipes and meters, as well as improvements in operational efficiency through reduced power, labor and chemical costs. Other strategies include improving internal management practices and procedures. In addition, some utilities have improved efficiency by establishing robust accounting, recordkeeping and billing procedures, or by creating new staff incentives and strengthening customer relations. Workshop case studies highlighted specific management and cost-cutting measures taken by successful utilities in Malaysia, the Philippines and Vietnam (see case study presentations in Annex 8).

MALAYSIA

Establishing Strong Accounting, Recordkeeping and Billing Procedures

Mr. Mohd Nizamuddin bin Mokhtar, Chief Legal Officer/
Corporate Services Manager, Penang Water Supply Corporation

The Penang Water Supply Corporation has instituted several measures to strengthen cost recovery, including improving strong recordkeeping, accounting and billing procedures, as well as management practices. In particular, over the last several years, the utility has improved its collection rate to 98.2 percent by metering all connections and imposing a strict disconnection policy for defaulters.

On the management side, by establishing a universal employment policy, setting staff performance goals and encouraging teamwork, the utility has increased worker efficiency and reduced staff turnover to less than five percent per annum. The average length of service at the utility ranges from 15 to 20 years. Finally, Penang has aggressively tackled the problem of NRW by creating a committee to oversee, evaluate and approve the use and installation of high quality piping materials. By 2010, the utility aims to reduce its current NRW levels from 20 percent to 15 percent.

PHILIPPINES

Developing Innovative Measures to Reduce Non-Revenue Water

Mr. Pablito S. Paluca, General Manager,
Dipolog City Water District

As part of its effort to achieve FCR, Dipolog City Water District has developed several innovative measures to reduce NRW. First, the Dipolog utility decided to centralize its water meters, which resulted in lower

installation costs, easier reading, repair and maintenance and greater control over physical water losses. To further reduce costs, the utility contracted out service installation and meter disconnection and reconnection. Finally, utility staff at Dipolog devised a low-cost sand filter system to remove iron compounds.

VIETNAM **Improving Customer-Oriented Services and Staff Incentives**

Mr. Vu Phong, Director, Hai Phong Water Supply Company

For Hai Phong Water Supply Company, improving customer services, upgrading existing infrastructure and creating staff incentives are central to achieving full cost recovery. Several years ago, the utility faced a number of challenges, including intermittent water supply, aging water supply infrastructure, no devices for measuring water use and poor customer service.

As a first step to address these difficulties, the utility organized public awareness campaigns to educate the public about water treatment processing and the importance of water conservation. The utility also conducted customer interviews and annual customer satisfaction surveys to evaluate its performance and assess customer needs. On the technical side, the utility upgraded its system by installing meters and high quality piping. The utility also made a number of management improvements (e.g., develop annual business plans) and policy changes to upgrade service levels (e.g., install house connections within 15 days).

To create strong staff incentives, the company allocates 28 percent of profits into a reward fund for distribution when staff members develop innovations and successfully implement efficiency improvements. Additional monies, approximately \$2,300, are added to this fund if the utility achieves a one percent decrease in NRW. Conversely, a one percent increase in NRW results in a \$320 reduction from this fund.

The Social Dimension of Full Cost Recovery: Ensuring Access to Water Services for the Poor

To address social concerns about affordability of and access to water services for the poor, experts from OECD, Institute of Global Environment and Society (IGES), ADB and Poland discussed the social implications of water pricing and solutions for ensuring access. Finding the right balance between establishing financially

autonomous and sustainable utilities and ensuring access to services for the poor is no small task. Case study presentations from such diverse places as China, Poland, Armenia and Asia considered tariff structures, willingness to pay and coverage issues in the context of full cost recovery (see case study presentations in Annex 9).

The Social Dimension In Water Pricing - Experience from the OECD

Mr. Peter Börkey, Administrator, OECD

An inherent conflict exists between efficiency and equity in water pricing, particularly as policies move towards full cost recovery pricing. These inequities can be addressed through policies that are geared toward providing support to the poorest sections of the population.

OECD countries enjoy high access levels to both water supply and sanitation with 85 percent of the population or more connected to water supply, while in many Asian cities, the percentage is less than 50 percent. Hence, while in the OECD ensuring that water services remain affordable for the population is the main concern, in Asia, it is to provide access to centralized water services to a greater share of the population.

Within OECD countries, water prices continue to rise due to costs of increasing pollution and regulation. As a result, many OECD countries implement social measures to ensure water remains affordable to the public at large and to extend access to poor unserved populations. These social measures include progressive social tariffs like IBTs, targeted assistance for water to the poor through income assistance and vouchers, payment assistance loans and debt repayment plans, cross subsidization between different users and prohibition of water disconnection.

Asian countries should consider similar strategies in their efforts to expand service. One key consideration is connection fees, which can be 20 times more than the annual cost of water for an average family. For example, connection fees in Asian cities range from \$13 in Kuala Lumpur up to a staggering \$87 in Phnom Penh. The upfront payment to connect to water systems is acceptable, but only if it does not go beyond the inclusion of customer-specific costs (e.g., billing, metering, payment collection).

Affordability and Social Protection in the Water Sectors of China and Armenia

Mr. Brendan Gillespie, Head of Non-Member Countries Division, Environment, OECD

Water sector reform efforts in China and Armenia illustrate several key points about affordability and social protection. First, it is the role of governments and not utilities to directly monitor and address the social concerns about affordability of and access to water services. Second, in terms of implementation of such policies, local governments should set a social agenda for water supply under the supervision of the central authorities. Water utilities, in turn, should work closely with local governments to ensure social and political acceptability of tariff policies. And finally, while there are many lessons to be shared, local solutions will require a case-by-case approach.

In an effort to assist policymakers make informed decisions about water financing and management strategies, OECD together with Denmark developed a software program called FEASIBLE that evaluates the gap between financing sources and financing needs. Policymakers in Sichuan, China and Yerevan, Armenia, with assistance from OECD, have applied this financing model to develop infrastructure development targets and corresponding financing strategies, as well as to evaluate the ability to pay based on income growth, social protection budgets and required legal and institutional reform in their respective countries.

Several similar conclusions emerge for both countries applying FEASIBLE: (1) affordability is not necessarily a key constraint; (2) tariff increases can be deferred over time if the local government can take on debt; (3) social protection measures are necessary, but should be better targeted; and (4) utility reform can improve efficiency and boost revenues through measures, such as improved collections, metering, increased tariffs and arrears forgiveness. The bottom line is that this tool can effectively assist governments in finding their own solutions to financing water sector needs in tandem with social goals.

“Social protection measures to secure affordability of and access to water is the primary responsibility of governments, not utilities.”

Mr. Brendan Gillespie, Head of Non-Member Countries Division, Environment, OECD (see Annex 9)

The Path Towards Improved Cost Recovery in Poznan, Poland

Mr. Tomasz Kayser,
Deputy Mayor of Poznan, Poland

Water sector reform in Poznan, the fifth largest city in Poland, offers lessons on the importance of gaining public support and acceptance for tariff increases, and establishing rationally-based tariff setting procedures. In practice, cost recovery in Poznan is not so much an economic problem as a social one, requiring a balancing of difficult and politically sensitive decisions.

In 1989, following the transition to a market economy, the local government of Poznan and then eventually a commercial law company assumed responsibility for the water supply system, which had fallen into disrepair after years of neglect under communist rule. Citizens had come to expect cheap, poor quality water with intermittent levels of service.

To improve the quality of Poznan's water supply and expand services to municipalities surrounding the city, the utility required substantial capital investment. Before tariff increases could be sought, however, the utility recognized the necessity of improving services to establish credibility among customers.

As a first step, the utility conducted a survey in 1999 among customers to evaluate their willingness to pay higher tariffs, and found that 49 percent of the population would accept higher charges so long as there were improved water services. Only 40 percent of surveyed customers did not favor water price increases. Next, the utility dramatically improved its water quality to convince the public that drinking water was a valuable, high-quality product, not a mere commodity.

Decentralization of water supply management in Poland gave local governments, including Poznan, direct authority to draft new legislation regulating tariffs. The new tariff-setting procedures in Poznan required the executive board of the water utility to prepare an annual tariff request with a long-term development plan outlining rationally-based calculations of tariff pricing, as well as necessary capital improvements and financing sources among other items.

According to the tariff process, 45 days after the utility submits its annual plan, the city council and mayor must review and verify the proposed tariffs and long-term investment plan. If the council does not approve the proposed tariff within 45 days, the tariff automatically comes into effect 70 days after submission of the utility's annual plan and proposed tariff increase. In practice, assuming the council approves the long-term development plan and the operational and investment costs are calculated properly, the council cannot reject the proposed tariff request. Given political reluctance to increase tariffs, these procedures help the council to achieve rationally-based and consistent decisions. (See presentation and article in Annex 9).

The Social /Affordability Dimension of Full Cost Pricing-Empirical Experience From Asia

Dr. Mushtaq Ahmed Memon, Senior Policy Researcher, IGES

Compared to Europe, Asian countries do not enjoy high levels of access to both water supply and sanitation. Average water tariffs in Asian cities vary widely, and in some cities, unserved and unconnected populations may pay as much for water as they do in monthly housing expenses.

In Manila, for example, a local resident can pay 1,000 pesos (about \$ 17.80) per month for accommodation and 900 pesos (about \$ 16) per month for 6 m³ of water. By contrast, piped water supply users in Manila only pay about 160 pesos (about \$3) per month for about 30 m³ of water.

Central to the issue of affordability are high connection charges and low willingness to pay for water services. Connection charges often represent the greatest barrier to affordability of water services for the unconnected poor, while customer willingness to pay remains low in areas with intermittent water supply and poor water quality.

To tackle these affordability issues, utilities in Asia should focus on the quality of service and raise customer awareness about the value of water and its relationship to maintaining good health and hygiene. IBTs in some instances may also increase affordability for some users by cross-subsidizing rates and encouraging conservation behavior. Finally, by increasing operational efficiency (e.g., reduced NRW, lower O&M costs and better collections) and seeking tariffs that cover operational costs, utilities may expand coverage to better serve the unconnected poor.

Extending Access to Water Services to the Poor in Peri-Urban and Rural Areas

Mr. Januar Hakim, Urban Development Specialist, ADB

Of the 1.2 billion people worldwide who lack access to safe water supplies, most populations tend to be poor rural dwellers. For every urban person, six in the peri-urban and rural areas lack access to potable supplies, which are critical to health, well-being and productivity.

Several factors explain why the water sector in peri-urban and rural areas has trailed behind urban centers. First, providing water supply in rural areas is often a low prior-

ity, and thus has low visibility. Second, extending services to distant areas has high infrastructure costs and low investment opportunities. Lastly, knowledge of operations and maintenance also remains low given that few water supply facilities are located in peri-urban and rural areas.

Mobilizing resources to extend rural water supply will require communities, especially women, to actively participate in water governance and develop innovative community-based strategies. As a first step, building local capacity and developing skills are essential to empowering these community members.

Rural water supply projects funded by ADB apply several key policies, including combining water use and resource management, focusing lending on catalyzing water investments, utilizing low-cost appropriate technology, promoting environmental awareness, integrating woman and gender perspectives and promoting the “user pays” principle to recover costs.

Lessons learned from ADB-funded projects in Laos, Nepal and Pakistan reveal that: (1) a direct link exists between poverty and water security; (2) community involvement is critical to sustainability and financing O&M costs of rural water supply; (3) customer willingness to pay higher tariffs is directly related to better water services; (4) addressing gender concerns improves service performance; and (5) good governance is essential to the sustainability of water supply services.

regional action agenda and conclusions

Workshop presentations and discussions made clear that there is no one method or system that utilities can apply in their pursuit of cost recovery. Rather, each utility must develop its own multi-faceted approach that takes into account sector enabling conditions and employs new strategies that make best use of unique capabilities and available resources. Survey results and case studies also confirmed that to affect change, utility managers must set clear priorities and then maintain discipline in implementing new plans and solutions, often in the face of political pressure.

Workshop participants were also unanimous in their support for regional exchange as a vital and useful strategy for utilities to improve operations, and ultimately expand the supply of clean water in the region. As a regional network, SEAWUN is well positioned to facilitate this exchange of best practices and information between utility managers and operators, local governments and the public.

Strategies for Regional Collaboration

In advance of small group discussions on developing a regional FCR action agenda, a representative from Water for People (WFP), a U.S.-based NGO dedicated to promoting global access to clean water through counterpart exchange, provided information on effective strategies for regional cooperation.

Partnering for Change

Mr. Peter Nathanson, Engineer and Trainer,
Water for People (www.waterforpeople.org)

Based on Water For People's work worldwide, partnership and counterpart exchange can be effective strategies for empowering local communities to catalyze change in the water sector. Technical assessments, twinning arrangements, targeted training and mentoring can be useful tools for utilities and organizations like SEAWUN in working together to share best practices and promote dissemination of information.

Assessments provide a basis for strengthening the technical, managerial and financial capacity of utilities by identifying performance limiting factors and setting

“Asian countries share many of the same development priorities, economic and institutional constraints, and political and cultural factors, and it makes perfect sense that we work together to share our common challenges and solutions. SEAWUN provides an important platform for utilities in the region to work together to achieve our goals in serving our citizens, our cities and our countries.”

Dr. Prasert Chuaphuanich, Governor,
Provincial Waterworks Authority of Thailand,
(see Annex 4)

priorities. Targeted training builds capacity in priority program areas, while twinning and mentoring arrangements between utilities promote one-to-one knowledge transfer and foster sustainable relationships (see Annex 9).

Regional Action Agenda

As a final activity at the regional workshop, participants engaged in interactive small group discussions aimed at identifying key strategies and tools for promoting FCR in the region and supporting SEAWUN in its mission. Priority focus areas included: (1) tariff pricing and affordability; (2) operational efficiency; and (3) leadership and management.

Under each focus area, workshop participants identified priority actions and identified possible implementation strategies and tools that could be employed at the regional or country levels, including country or regional lessons-learned workshops, targeted counterpart exchanges, specialized country or regional training, demonstration pilot projects, sustained utility-to-utility exchange (“twinning”), publications and/or websites (see Table 6). Taken together, these findings serve as a regional action agenda for use by SEAWUN and other partner organizations, as well as individual utilities, in developing regional and country FCR initiatives.

Table 6: Regional Action Agenda for Promoting FCR

Priority Areas	Regional and Country Actions	Possible Implementation Strategies and Tools
<p>I. Tariffs and Affordability</p> <p>Objective: Promote adoption of sustainable tariffs and adjustment policies that enable cost recovery while ensuring affordability</p>	<p>1. Revise national tariff legislation to reflect FCR and to improve institutions and procedures (i.e., establish linkage between capital planning and financial implications taking into account connection charges, inflation and other factors)</p>	<ul style="list-style-type: none"> • Computer-based financial tools to assist utilities and governments to calculate rationally-based tariff structures • Information library and website on tariffs • Specialized regional and national trainings
	<p>2. Develop regional guiding principles for tariff setting and FCR for authorities to develop new policies or legal requirements</p>	<ul style="list-style-type: none"> • Demonstration projects at country level to apply guiding principles • Information library and website on tariffs
	<p>3. Strengthen stakeholder awareness of critical linkage between tariffs and affordability</p>	<ul style="list-style-type: none"> • Customer satisfaction surveys assessing existing service and willingness to pay • Customer-awareness programs • Specialized regional and national training
	<p>4. Promote development of model performance contracts between utilities and local governments</p>	<ul style="list-style-type: none"> • Workshops to share lessons learned and present technical information • Twinning and exchange visits to learn about roles for elected and administrative officials • Information library and website containing model performance contracts
	<p>5. Conduct targeted studies and affordability analyses that address implications of tariff increases, subsidies, coverage expansion and connection charges</p>	<ul style="list-style-type: none"> • Consultations with unserved poor • Publications and postings to website
<p>II. Operational Efficiency</p> <p>Objective: Improve operational efficiency of utilities through adoption of innovative practices and cost-cutting methods</p>	<p>1. Develop NRW policies and programs addressing leakage, illegal connections, meter management, billing and collection, community participation in leak detection, etc.</p>	<ul style="list-style-type: none"> • Country-level demonstration projects and publications piloting effective NRW policies • Twinning arrangements on NRW • Workshops to share information and best practices
	<p>2. Develop regional guidelines on O&M best practices</p>	<ul style="list-style-type: none"> • Specialized country and regional trainings • Twinning arrangements on O&M • Publications on O&M best practices
	<p>3. Adopt best practices for reducing input costs, such as energy and chemicals</p>	<ul style="list-style-type: none"> • Web database on suppliers and technology • Targeted counterpart exchanges

Priority Areas	Regional and Country Actions	Possible Implementation Strategies and Tools
	4. Adopt new employment practices (e.g., voluntary retirement, reduced overtime, hiring freezes and outsourcing)	<ul style="list-style-type: none"> • Workshops • Demonstration pilot projects testing innovative employment practices
	5. Adopt new asset management policies and procedures to optimize capital requirements	<ul style="list-style-type: none"> • Specialized trainings in finance, accounting and capital project prioritization methods • Benchmarking program
	6. Establish certification and training programs to improve staff performance	<ul style="list-style-type: none"> • Train-the-trainer programs in finance, accounting and engineering • Inventory existing training programs for staff exchanges
	7. Establish programs to create cost center/functional accounting systems	<ul style="list-style-type: none"> • Specialized training in cost accounting • Targeted exchange program • Demonstration pilot project and workshops
III. Leadership and Management Objective: Strengthen leadership and management practices of water utilities to improve overall financial performance	1. Develop action plans on utility autonomy (“true corporatization”) to facilitate adoption of new employment policies, hiring practices, salary scales, etc.	<ul style="list-style-type: none"> • Workshops to share best practices • Study tours and twinning arrangements supported by national water associations
	2. Establish staff and management incentives via performance measures, milestones and rewards	<ul style="list-style-type: none"> • Consultations with SEAWUN, national water associations and boards of directors of successful utilities with strong staff incentive programs • Workshops to share best practices
	3. Develop operator certification and training programs to improve staffing capabilities, enhance transparency and provide incentives	<ul style="list-style-type: none"> • Regional trainings with accreditations
	4. Devise regional or provincial plans for achieving economies of scale (i.e., consolidating several contiguous utilities, regionalizing functions like billing, human resources, procurement)	<ul style="list-style-type: none"> • Targeted counterpart exchange • Country and regional workshops to share best practices

Concluding Remarks

Representatives from US-AEP, OECD and SEAWUN made concluding remarks at the regional workshop, reaffirming their commitment to work in partnership and promote full cost recovery among utilities in the region.

United States - Asia Environmental Partnership

Mr. Winston Bowman, Regional Coordinator

US-AEP affirmed that clean water is a top priority of USAID in Asia, and that ensuring the financial sustainability of water supply companies is central to any strategy for improving access to clean water. For US-AEP, workshop discussions validated the findings of the regional survey: appropriate tariffs, efficient operations and effective leadership are all crucial to cost recovery, which can enable utilities to increase connections, especially for both the urban and rural poor.

The preliminary action agenda created by participants will provide a useful basis for utilities, utility associations, SEAWUN, USAID and others as they work together to implement priority strategies and activities. US-AEP looks forward to working with SEAWUN in support of its first regional convention for water utilities in Hanoi in 2005 by assisting with the full cost recovery component and building on the results of this workshop.

Organisation for Economic Co-operation and Development

Mr. Brendan Gillespie, Head of the Non-Member Countries Division, Environment

OECD observed that achieving the Millennium Development Goal 7 by 2015 will require significant collaboration and cooperation. The dialogue at this workshop, however, illustrated how collaboration here in the region is possible. Reminded of the phrase, "think globally, act locally," OECD noted that there is a clear need to exchange ideas globally, but implementation is most effective locally, particularly in the water sector.

As an intergovernmental organization, OECD works closely with governments to develop affordability policies and water pricing structures that increase overall access and enable water operators to focus on producing and delivering clean water. OECD hopes to build on the productive start made at this regional workshop to support efforts to promote information and technical exchange on key issues, including tariff setting, financial planning and benchmarking.

Southeast Asian Water Utilities Network

Mr. Kumala Siregar, President

SEAWUN commended participants for their presentations and hard work in developing an action agenda for full cost recovery. With guidance and on-going support from members, SEAWUN will use its regional platform to help implement the action agenda by sharing best practices on promoting the financial strength of utilities and extending service coverage to the poor.

additional survey information

This annex provides more detailed information gathered from national water associations and utilities on the national policies and institutional arrangements for water supply sector and tariff adjustment, as well as financial and operational performance of surveyed utilities.

INDONESIA

Sectoral Overview

In Indonesia, local governments are responsible for managing water supply services. Known as PDAMs (*Perusahaan Daerah Air Minum*), there are over 300 local government utilities. It is estimated that only five percent of these 300 Indonesian utilities achieve full cost recovery levels and that 40 percent of these utilities are unable even to recover their O&M costs. Average service coverage in urban areas in Indonesia is a mere 38 percent.

Tariff Adjustment

Tariff review and adjustment fall under the purview of the local government, as represented by mayors. Although not explicitly stated, the tacit agreement of the local councilors is also required, especially since decentralization in 1999.

In 1998, Indonesia promulgated a tariff regulation mandating that utilities recover at least O&M costs, depreciation and debt service costs (Instructions of Ministry of Home Affairs No 4/1998). As a long-term goal, this regulation requires utilities to recover costs, but also achieve a return on investment. To date, however, enforcement of this regulation has been limited, and as a result, tariff increases occur only once every five or six years.

Several reasons can explain why Indonesia has not enforced its tariff regulation:

- Enforcing a Ministerial Instruction is difficult in the face of political pressures related to tariff increases for what is considered a basic and essential service.
- After decentralization in 1999, the tariff review and adjustment process became even more politicized and subject to election cycles and political infighting between the administration and the local councilors.

- Local governments often do not have the capacity to determine whether a request for a tariff increase is rationally based and are unfamiliar with financial concepts such as depreciation.

As to social concerns about water affordability, Indonesia policy recommends that households not pay more than four percent of their income for water. Many municipalities, however, except for the larger and more capable ones, do not even investigate what percentage the resulting tariff will constitute of the average household income.

Surveyed Utilities

All four surveyed utilities – Bogor, Makassar, Malang and Medan – cover their O&M expenses and all, except for Makassar, have achieved full cost recovery (see Table 1). Also, all four utilities have received grants from national or local government agencies.

With the number of connections ranging from 70,000 to 330,000, all four Indonesian utilities are considered medium- to large-sized utilities. As the largest surveyed utility, PDAM Tirta Nadi Medan is unique in Indonesia, in that it is owned by the provincial government and serves the provincial capital, Medan, as well as several smaller towns.

In recent years, the utilities operated by Medan, Makassar and Bogor all have had significant tariff increases due in large part to innovative thinking and strategic alliances. For example, during a public consultation on a proposed tariff increase, the Makassar utility decided to invite those citizens who were at the time unserved by the utility and were paying much higher prices from vendors than connected customers.

With a tariff increase, this unserved population would directly benefit and receive piped water at a fraction of the vendor water prices. Not surprisingly, when the served population voiced its objections to the increase, the unserved population defended the proposed new rate, arguing that such opposition effectively denied service expansion to the poor unserved areas. Eventually the existing customers agreed to the proposed tariff increase, demonstrating that engaging the unserved and often

ignored population can be an effective strategy.

In Malang, prior to seeking a tariff increase, the utility first launched a public campaign to explain the need for increased water rates and the utility's proposed plan. The utility then conducted a customer satisfaction survey that asked, among other things, the level of satisfaction with the utility's service and whether customers would object to the planned tariff increase. The survey revealed that customers were generally satisfied with service and would not object to the increase. The utility then shared the results of this survey to alleviate local government concerns about public opposition when applying for a tariff increase.

In Medan, the utility made a recent tariff increase more palatable to politicians by locking in the tariff price for the poor while increasing rates for more well-to-do customers. When restructuring the pricing, the utility reduced the size of the consumption blocks, which in turn negatively affected some poor customers who had to pay more, since their consumption fell under the new higher priced consumption block.

MALAYSIA

Sectoral Overview

In Malaysia, water management is the responsibility of state governments, with the exception of Sibul Municipality where the local government has authority. There are also five legal structures, ranging from a division in a government department to a totally privatized entity. Private sector participation is significant, with companies now managing over 70 percent of the nation's water production.

Universal coverage is also the norm in Malaysia. Nationwide, 97 percent of the urban population and 86 percent of the rural population are served with piped water. Federal and state government investments, rather than tariffs, primarily funded Malaysia's extensive water service coverage.

Discussions are now underway on a new institutional framework that will shift key water functions to the federal government, consolidate the number of providers from 17 to 4 or 5 financially independent providers and establish an independent regulatory body. One factor behind this restructuring is the inability of state governments to service their debts to the federal government, since tariffs in many of the states have remained low.

Tariff Adjustment

State governments (or local government in the case of Sibul) conduct water tariff reviews and make necessary adjustments. In general, water tariffs are highly subsidized and adjustments are regarded as socially and politically sensitive issues. Although a small number of providers have increased tariffs in the last two or three years, more than half of providers have not received tariff increases in 10 to 20 years.

Tariff adjustments in the three surveyed utilities – Penang, Johore and Sibul – are consistent with this pattern, with the exception of Johore, a private provider whose concession agreement requires a certain rate of return on its investment and thus receives more regular increases.

Surveyed Utilities

Each of the three surveyed Malaysian utilities has a different legal structure: Sibul Water Board is a local government agency, owned 100 percent by the local government; Penang Water Supply Corporation (Penang WSC) is a government enterprise with the majority interest owned by the government; and Ranhill Utilities Berhad Johore is a private entity.

Penang WSC is considered one of the best-managed utilities in Malaysia due in large part to its billing and collection practices and strong management. Penang WSC attributes its success to corporatization of the entity. Penang WSC boasts very low NRW levels (20 percent) and production costs, which at \$0.05/m³ are the lowest of all the surveyed utilities across the region.

Interestingly, in assessing its own performance, Penang WSC did not place much importance on improving cost recovery through tariff increases, despite having one of the lowest tariffs in Malaysia. Rather, Penang WSC identified cost-cutting measures and other revenue enhancement strategies – a technique that is shared by other financially successful utilities in the region.

In contrast to the other two utilities surveyed, Sibul placed highest importance on its relationship with local government in achieving cost recovery. Perhaps this can be explained by the fact that Sibul is a local government agency, while the other two utilities are a private entity and a partially-owned government enterprise.

All of the surveyed Malaysian utilities cover their O&M costs and all, except Sibul, achieve full cost recovery. Furthermore, the financial and operating ratios of the surveyed utilities firmly support the fact that, all things

being equal, larger utilities operate more efficiently as a result of economies of scale.

Johor and Penang, which are respectively 10 and 18 times larger than Sibul, operate on about half the staff per 1,000 connections and have 75 percent lower production costs. All three surveyed utilities have significant surplus water production capacity and almost 100 percent coverage. Accordingly, they will probably not require significant additional capital expenditure in the near future.

PHILIPPINES

Sectoral Overview

As in Indonesia, water supply is the responsibility of local governments, which follow two institutional models: (1) external provision by local corporate utilities (referred to as Water Districts); and (2) internal provision by local governments themselves. Local governments with urban populations of more than 20,000 people typically establish a separate Water District. The majority of the 448 operating Water Districts in the Philippines are considered small by international standards.

Tariff Adjustment

Compared with utilities in other countries in the region, particularly in Indonesia, Malaysia and Thailand, the Philippine Water Districts are able to secure sufficient tariff increases to cover their actual service costs. Responsibility for tariff setting and technical assistance rests with the Local Water Utility Administration (LWUA), a national, technical organization. Subject to less political pressure, LWUA typically adheres to its tariff policy, which advocates for rates to reflect the full cost of service delivery. Thus, while Water Districts do not receive any form of government assistance, whether for capital or operational expenditures, they do receive regular tariff increases.

The fact that the tariff review process takes place at the central level, removed from the public, however, does not mean that the public is not involved on a proposed tariff adjustment. In fact, the public's input to a proposed adjustment is mandatory.

After LWUA determines that a proposed adjustment is justified, the Water District is required to hold a public hearing and invite LWUA officials. Following the public hearing, the Water District must adopt a resolution approving the new water tariff and forward this along with the public hearing documents (e.g., minutes of public hearing, attendance sheet) to LWUA for confirmation.

To further assist utilities, Philippine national policy allows water utilities to increase rates by up to 60 percent and to approve two- or three-step incremental increases in one review process. The Metro Leyte utility provides an example of such an adjustment; water rates increased by over 50 percent for each non-wholesale customer type between May and December 2003.

Compared to Water Districts, local governments have much greater difficulty obtaining the necessary tariff adjustments, since the tariff review process is conducted at the local level. This finding supports the view that tariff reviews undertaken by entities vulnerable to political pressures, such as local governments, tend to be more difficult and unpredictable, and that tariff reviews should either be conducted by an independent expert-based entity or at least receive input from an expert-based entity.

Surveyed Utilities

With the number of connections ranging from 7,000 to 25,000, the three Water Districts – Dipolog, Marilao and Leyte – are small as compared to other utilities in the region. In the Philippines, however, these selected utilities are classified as “average” or “big.”

In contrast to other surveyed utilities, none of the Philippine utilities assigned great importance to government relations, which can be explained by the tariff adjustment process. Rather, all three utilities ranked attitudes and professional background of the managers as the most important factor in achieving FCR.

Perhaps due to their small size, the Philippine Water Districts have developed innovative approaches for capturing service delivery costs. For example, Philippine utilities group two to ten water meters in one location to simplify installation, maintenance and reading and to eliminate meter tampering.

In Dipolog, the utility implements capital projects itself, unless special expertise, such as a geo-resistivity survey, well-drilling or pile-driving, is needed. In fact, even in contracts with experts, one objective is to increase the in-house capacity to minimize future outsourcing.

In Marilao, the utility requests new customers to make an “equity” contribution to the utility in return for installing a connection. This contribution is then repaid to the customer over a two- to three-year period by offsetting water bills and paying the balance by check at the end of the period. In the past, these funds have also been used as matching funds against government grants. This practice has provided Marilao with a mechanism to fund

a portion of its network extension expenditures.

As a result of rate increases and targeted efforts to reduce expenses, all three surveyed utilities are able to cover all of their O&M costs and achieve FCR, with the exception of Leyte, which is expected to achieve FCR in 2004 as a result of substantial rate increases initiated in December 2003.

As with many of the other surveyed utilities in the region, all three Philippine utilities have surplus water production capacity, which reduces their capital expenditure requirements for production in the future. However, given the low service coverage in the Philippines, ranging from a low 35 to 50 percent, additional capital resources will clearly be required to meet growing distribution needs.

THAILAND

Sectoral Overview

In Thailand, the two state-owned enterprises serve the majority of the country - a centralized arrangement that is unique in the region. The Metropolitan Waterworks Authority (MWA) serves Bangkok and two surrounding provinces of Nonthaburi and Samutprakarn (1.5 million connections), while the Provincial Waterworks Authority (PWA) serves the remaining 73 provinces (1.9 million connections) with its 225 affiliated waterworks. (Individual cities, however, are able to opt out of PWA's system). Both are government-owned enterprises and report to the Ministries of Finance and Interior.

Thailand's water sector also relies on private entity funding and management, having established several small- and large-scale public-private partnerships (PPP). PWA, for example, has entered into several service and management contracts, as well as build-own-operate-transfer (BOOT) projects.

One of the more notable PPPs is the \$152 million Pathum Thani BOOT project engineered in 1995 between PWA, an international water company and several local management, engineering and financing companies. Another example of private sector involvement is East Water, a privatized utility that is servicing the bulk of industrial users on the eastern seaboard. Although Thailand has a policy in place to promote privatization of its state-owned enterprises and decentralized units, there is considerable local resistance to this policy.

One notable feature of the Thai water sector is how the government's establishment of key performance indicators (KPIs) and targets in 1996 has induced improved

performance at both water authorities. Each year, water authorities negotiate indicators and targets with the Ministry of Finance under the TRIS (Thai Rating and Information Services) program.

Indicators can vary from year to year, depending on priority areas during that particular year (see Box 1 for KPIs applied by MWA). In recent years, governance has become increasingly important, and in fact, in 2004, indicators under the governance category received the highest weighting of all categories.

MWA and PWA have also applied these indicators to each of their divisions and units. PWA took the KPI system one step further and adopted a scorecard to evaluate staff member performance based on the same KPIs applied to the organization as a whole. Measuring individual, departmental and organizational performance has resulted in overall improved performance of operations.

Box 1: Key Performance Indicators for MWA

Category	Indicator
Efficiency	<ul style="list-style-type: none"> • Net profit • New customers • Pressure • Account balance • E-procurement • Appointment of Chief Financial Officer
Financial	<ul style="list-style-type: none"> • Cost of production • Cost of service/customer • Cost of administration/total revenue • Unaccounted-for-water
Customer Service	<ul style="list-style-type: none"> • Speed in responding to complaints • Service to customer <ul style="list-style-type: none"> - Time to change customer type - Time to change customer name - Time to temporarily disconnect • Number of areas where water is potable
Administration & Organization	<ul style="list-style-type: none"> • Development of a Management Information System • Plan to become a publicly listed company • Progress in implementing the privatization plan • Economic value added
Governance	<ul style="list-style-type: none"> • Transparency <ul style="list-style-type: none"> - Board of directors has no conflict of interest - Declaration of earnings by board of directors - Access to information • Internal Control

Rewards for meeting targets include government recognition and increased autonomy in operations. MWA, for example, now has more discretion in setting salaries for employees based on its high performance rating and national government awards.

Tariff Adjustment

Thailand has not adopted regulations or policies mandating tariff rates that ensure cost recovery. The tariff structure in Thailand is uniform nationwide in order to allow for cross subsidization between richer and poorer regions. Securing tariff adjustments continues to be a political and ad-hoc process that requires extensive lobbying in advance of an increase request.

Theoretically, MWA has more autonomy than PWA in setting tariffs because its board of directors has the authority to adjust water pricing. In practice, however, the MWA board only approves an increase if there is a positive signal from the government. PWA must apply through the Ministry of Interior to obtain cabinet-level approval for tariff adjustments. Given this difficult political process, it is not surprising that PWA has not received a tariff increase since 1998.

Surveyed Utilities

With O&M ratios of 0.32 and 0.33 respectively, both PWA and MWA are performing significantly better than other surveyed utilities, whose ratios range from 0.5 to 0.9 (see *Figure 1*). Furthermore, MWA outperforms all other utilities with an FCR ratio of 0.6. In fact, MWA has been operating at a profit for more than 15 years and does not receive any government support. PWA, on the other hand, still receives government support due to the sizeable investment required to expand coverage to rural areas throughout Thailand.

It is worth noting that of all the surveyed utilities, only the Thai ones have implemented specific programs to improve staffing efficiency (as measured by number of employees per 1,000 connections). Improving staffing efficiency can significantly improve FCR, since labor costs are often a utility's single largest operational cost. Thai programs to improve staffing efficiency include early retirement, hiring freezes and outsourcing of meter reading.

As a result of hiring freezes, PWA has reduced its staffing efficiency ratio from 4.86 to 3.32 in the period between 1998 and 2002. Although compared to other utilities of similar size, such as Penang and Johore, however, there still seems to be room for improvement for PWA in this respect (see *Figure 2*).

While economies of scale certainly play an important role in the positive performance of both Thai utilities, PWA is currently exploring the prospects of decentralizing its operations.

VIETNAM

Sectoral Overview

Vietnam's 67 provincial governments operate Provincial Water Supply Companies (WSCs) throughout the country. Service coverage in urban areas ranges between 40 and 50 percent.

Tariff Adjustment

Historically, the central government funded all capital investments in the water sector and only required tariffs to recover O&M costs and address affordability, even though there were no specific affordability guidelines. As a result of this policy, water tariffs were often lower than production costs. The Provincial (or City) People's Committees were responsible for reviewing and approving tariffs, though tariff adjustments were irregular and at best took four to five years to implement.

In 2004, in an effort to accelerate cost recovery, the central government issued Directive 04/2004 requiring all WSCs to set tariffs based on the full and accurate inclusion of all O&M costs, depreciation, debt payment and return on investment. In the long term, this Directive also mandates tariff pricing to cover new investments.

Two WSCs have already adjusted their tariffs to comply with the directive and it is anticipated that other utilities will adjust their tariffs by early 2005. The Vietnamese Water Supply and Sewerage Association is confident that all companies will be able to implement this policy by the target date. Overall, Vietnam's new policy sets an important precedent for the region.

Surveyed Utilities

Surveyed utilities represent the three geographic regions: Hai Phong (north), Thua Thien Hue (central) and Ba Ria Vung Tau (south). All three utilities have strong O&M and FCR ratios and two of the three – Hai Phong and Thua Thien Hue – have significant idle production capacity, 31 percent and 43 percent respectively.

The third utility, Ba Ria Vung Tau, also has a high idle production capacity, which it attributes to an effective capital investment ranking system. Nationwide, idle production capacity is estimated at 22 percent.

NRW levels in all three surveyed utilities are good due in part to the relatively new water supply infrastructure. Ba Ria Vung Tau's non-revenue water loss at 15 percent is particularly impressive and can be attributed to accurate and regularly calibrated meters at the point of production and consumption, as well as the use and careful installation of high quality materials.

Also notable is the abbreviated collection period (2-10 days) as compared to 30-90 days for the other surveyed utilities or the World Bank's recommended 90 days. Reasons cited for this low collection period include the use of "collectors" whose bonuses are tied to their performance and a strict disconnection policy for non-payment.

The Hai Phong utility identified improved customer service as a key factor to increased cost recovery. The activities it undertook to improve customer service included: (1) annual staff training courses to improve communications and customer management skills; (2) rapid response to complaints, leaks and new connection requests; and (3) customer satisfaction surveys.

All three Vietnamese utilities fully cover O&M costs, which account for less than 60 percent of revenues, though none has achieved FCR in the conventional sense. Thua Thien Hue, for example, allocates all profits (about 15 percent of revenues) to business development, financial contingency and bonus and welfare funds.

annex two

workshop agenda

REGIONAL WORKSHOP

ACHIEVING FULL COST RECOVERY FOR WATER UTILITIES IN SOUTHEAST ASIA: *Sharing International Experience and Best Practices*

Four Seasons Hotel, Pimarnman Room
Bangkok, Thailand
December 13-14, 2004

DAY I: MONDAY, 13 DECEMBER 2004

- 8:30 – 9:00 **Registration**
- 9:00 – 9:15 **Opening Remarks**
Dr. Prasert Chuaphanich, Governor, Provincial Waterworks Authority of Thailand
- 9:15 – 9:30 **Welcoming Remarks**
Mr. Timothy Beans, Mission Director, USAID Regional Development Mission for Asia
- 9:30 – 9:45 **Program Objectives**
Mr. Kumala Siregar, President, Southeast Asian Water Utilities Network (SEAWUN)
- 9:45 – 10:15 **Achieving Full Cost Recovery (FCR): Principal Challenges and Solutions**
Mr. Scott Jazyuka, Sr. Finance Specialist, US-AEP
- 10:15 – 10:30 Coffee Break
- 10:30 - 12:30 Session I: Country Overviews for Cost Recovery – Survey Results and Discussion**
- Moderator: Ms. Laila Suryodipuro, Sr. Municipal Infrastructure Specialist, US-AEP
- Indonesia: Mr. Godman Ambarita, Executive Director, PERPAMSI
- Malaysia: Mr. Mohmad Asari Daud, Consultant
- Philippines: Mr. Fernando Diaz, General Manager, Marilao Water District
- Thailand: Mr. Pisit Hongvanishkul, Director of Policy and Planning Division
Provincial Waterworks Authority (PWA)
- Vietnam: Mr. Nguyen Quoc Quyen, Vietnam Water Supply and Sewerage Association
- Discussion
- 12:30-2:00 Lunch at Ratana-Kosin Room (Second Floor)

2:00 – 5:15 Session 2: Utility Experience and Best Practices in Achieving Full Cost Recovery

2:00 - 3:30 Panel 1: Utility Case Studies in Improved Cost Recovery:
Strategies for Improved Policies and Institutional Arrangements

Moderator: Mr. Scott Jazyanka, Sr. Finance Specialist, US-AEP

Indonesia: *Optimizing Tariffs through Effective Relationships with Local Government*
Mr. Subahri Ritonga, Administration and Finance Director, Medan Water Utility

Cambodia: *Institutional Restructuring to Improve Cost Recovery*
Mr. Ek Sonn Chan, General Director, Phnom Penh Water Supply Authority

United States: *Policies for Achieving Full Cost Recovery*
Mr. Khanh T. Le, Director of Special Projects, Willows Water District, Centennial, Colorado

Discussion

3:30 - 3:45 Coffee Break

3:45 - 5:15 Panel 2: Utility Case Studies in Improved Cost Recovery:
Strategies for Improved Management and Cost Cutting Measures

Moderator: Ms. Laila Suryodipuro, Sr. Municipal Infrastructure Specialist, US-AEP

Malaysia: *Establishing Strong Accounting, Recordkeeping and Billing Procedures*
Mr. Mohd Nizamuddin bin Mokhtar, Chief Legal Officer/ Corporate Services Manager, Penang Water Supply Corporation

Philippines: *Developing Innovative Measures to Reduce Non-Revenue Water*
Mr. Pablito S. Paluca, General Manager, Dipolog City Water District

Vietnam: *Improving Customer-Oriented Services and Staff Incentives*
Mr. Vu Phong, Director, Hai Phong Water Supply Company

Discussion

5:15-5:30 **Wrap-up and Closing Remarks**
Mr. Kumala Siregar, President, SEAWUN

DAY 2: TUESDAY, 14 DECEMBER 2004

- 8:45-9:00 Introduction for Day 2
Mr. Kumala Siregar, President, SEAWUN
- 9:00 – 12:00 Session 3: The Social Dimension of Full Cost Recovery: Ensuring Access to Water Services for the Poor**
- 9:00-10:30 *The Social Dimension In Water Pricing - Experience from the OECD*
Mr. Peter Börkey, Administrator, OECD
- The Path Towards Improved Cost Recovery In Poznan, Poland*
Mr. Tomasz Kayser, Deputy Mayor of Poznan, Poland
- Affordability and Social Protection in the Water Sectors of China and Armenia*
Mr. Brendan Gillespie, Head, Non-Member Countries Division, OECD
- Discussion
- 10:30-10:45 Coffee Break
- 10:45-12:00 *The Social / Affordability Dimension of Full Cost Pricing-Empirical Experience From Asia*
Dr. Mushtaq Ahmed Memon, Senior Policy Researcher, IGES
- Extending Access to Water Services to the Poor in Peri-Urban and Rural Areas*
Dr. Januar Hakim, Urban Development Specialist, ADB
- Discussion
- 12:00-1:30 Lunch at Montathip 4 Room (Ground Floor)
- 1:30 - 4:45 Session 4: Next Steps for Achieving Improved Cost Recovery in Asia**
- 1:30 – 2:00 *Water for People: Partnering for Change*
Mr. Peter Nathanson, Engineer & Trainer, Water for People
- 2:00 – 3:30 *Small Group Discussions: Priorities for Promoting FCR and Strategies for Collaboration*
- Co- Facilitators:
Ms. Laila Suryodipuro, US-AEP and Mr. Brendan Gillespie, OECD
Mr. Scott Jazyka, US-AEP and Mr. Peter Borkey, OECD
Mr. Peter Nathanson, Water for People, and Dr. Mushtaq Ahmed Memon, IGES
- 3:30-3:45 Coffee Break
- 3:45-4:45 Report Out and Recommendations
Moderators: Ms. Laila Suryodipuro, US-AEP
Mr. Scott Jazyka, US-AEP
- 4:45-5:00 Wrap Up and Closing Remarks**
Mr. Winston Bowman, Regional Coordinator, US-AEP
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Mr. Kumala Siregar, President, SEAWUN

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